

Table 2-5. Fairfax County Recycling Data (tons)

Material	2000	2001	2002
Paper	173,868	174,295	157,963
Metal	89,616	75,877	75,477
Plastic	3,521	2,508	2,581
Glass	17,228	9,183	10,453
Commingled bottles/cans	4,136	10,246	13,662
Yard waste	102,480	112,745	106,768
Wood	1,260	392	982
Textiles	444	2,711	2,353
Waste tires	4,229	3,950	7,649
Used oil	7,208	7,316	6,138
Used oil filters		128	182
Used antifreeze		920	705
Batteries	582	981	956
Electronics		54	132
Chemicals/solvents	967	61	47
Total material recycled	405,539	401,367	386,019
Waste generated	733,340	772,817	820,096
Total waste stream	1,138,879	1,174,184	1,206,115
County recycling rate (%)	35.6	34.2	32.0

CDD

CDD includes waste generated during (1) construction, remodeling, or repair of buildings or pavements; (2) destruction of structures and their foundations; and (3) land clearing operations.

Waste Generation Activities

CDD constitutes a major portion of the county solid waste stream. As defined by the Virginia Solid Waste Management Regulations, CDD includes the following:

- *Construction waste.* Solid waste produced or generated during construction, remodeling, or repair of pavements, houses, commercial buildings, and other structures. Construction wastes include lumber, wire, sheetrock, broken brick, shingles, glass, pipes, concrete, paving materials, and metal and plastics if the metal or plastics are part of the materials of construction or empty containers for such materials. Paints, coatings, solvents, asbestos, any liquid, compressed gases or semi-liquids, and garbage are not construction wastes.



- *Demolition waste.* Solid waste produced by the destruction of structures and their foundations, which includes the same materials as construction wastes.
- *Debris waste.* Wastes resulting from land clearing operations. Debris wastes include stumps, wood, brush, soil, and road spoils.

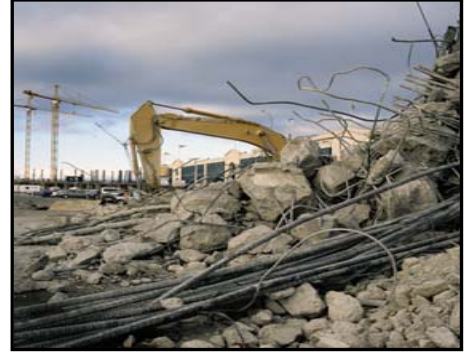
Waste Generation Rates

CDD generated in Fairfax County is primarily disposed of at three facilities in the county: Hilltop Sand and Gravel Company Debris Landfill (Alexandria), Lorton CDD Landfill (Lorton), and Rainwater Concrete Company Landfill (Lorton). In addition, three facilities in neighboring counties receive CDD generated in Fairfax County: Potomac Landfill (Dumfries), WMI (Manassas), and Corral Farm (Warrenton). Each of these facilities provided data on annual quantities of waste received and the estimated percentage attributable to Fairfax County. Table 2-6 shows the data submitted by the facilities. (CDD is not weighed at these facilities; tonnage is estimated based on volumes.)

Table 2-6. CDD Facility Estimated Waste Receipts (tons)

Facility		1998	1999	2000	2001	2002	Average
Hilltop Debris LF	Total	350,000	300,000	250,000	200,000	200,000	260,000
	Fairfax	297,500	255,000	212,500	170,000	170,000	221,000
Lorton CDD LF	Total	868,000	955,000	1,050,000	1,155,000	1,040,000	1,013,600
	Fairfax	325,000	358,000	394,000	433,000	390,000	380,000
Rainwater Conc. Co. LF	Total	32,000	35,000	51,000	43,000	44,000	41,000
	Fairfax	24,000	25,000	41,000	33,000	30,000	30,600
Potomac LF	Total	—	—	—	—	—	—
	Fairfax	10,000	19,000	28,000	38,000	47,000	28,400
WMI Manassas TS	Total	33,000	33,000	33,000	33,000	33,000	33,000
	Fairfax	11,000	11,000	11,000	11,000	11,000	11,000
Corral Farm LF	Total	165,000	165,000	165,000	165,000	165,000	165,000
	Fairfax	83,000	83,000	83,000	83,000	83,000	83,000
Total Fairfax CDD		750,000	751,000	769,000	767,000	730,000	753,400
Population		962,910	978,038	1,001,624	1,016,406	1,032,205	998,237
CDD gen. rate (pcd)		4.27	4.21	4.21	4.13	3.88	4.14

No Fairfax County-specific CDD waste stream characterization data are available to estimate the percentage composition of the CDD waste stream of each waste type. A 1998 national study of CDD provided limited data on several waste characterization studies, and the CDD composition varied greatly depending on the type of project undertaken. The study found, in general, that the major components of CDD for residential projects are wood (14 to 67 percent), drywall (17 to 27 percent), roofing materials, concrete, and brick.



The average county CDD generation over the last five years is 4.14 pounds per capita per day.

Fairfax County estimated its CDD per capita generation rate by dividing total annual CDD attributable to Fairfax County received by the facilities listed in Table 2-6 by the county population for that year. As presented in Table 2-6, the generation rate has decreased over the preceding five years from 4.27 to 3.88 pcd, or 10 percent. Over the last five years, the average CDD generation rate is 4.14 pcd.

Special Wastes

Special wastes generated in Fairfax County include hazardous wastes, regulated medical wastes, household hazardous wastes, tires, used oil, used antifreeze, batteries, sludge, and septage.

Waste Generation Activities

Special wastes are components of the county solid waste stream that have unique collection, disposal, or recycling requirements. These wastes include hazardous wastes, regulated medical wastes (RMW), HHW, tires, used oil, used antifreeze, batteries, sludge, septage, mining wastes, agricultural wastes, and spill residues.

Hazardous wastes generated by commercial activities are regulated and must be disposed of properly. Hospitals and clinics generate RMW. Households, auto shops, and vehicle repair shops run by county agencies, cities, and towns generate tires, used oil, antifreeze, and batteries. Residents generate HHW at their homes, including aerosols, pesticides, oil based paints, and other hazardous materials. Homes with septic systems generate septage (mostly in the western part of the county). The county's wastewater treatment plant, the Noman M. Cole, Jr. Pollution Control Plant, generates sludge that is managed on-site.

Fairfax County generates minimal reportable agricultural wastes, mining wastes, and spill residues. The county does not expect the annual generation quantities of these wastes to increase to measurable levels, so this report does not include waste projections for these special wastes.

Waste Stream Material Types and Generation Rates

Hazardous Wastes

EPA establishes criteria for the identification and classification of hazardous wastes and sets requirements for their proper management. In

Fairfax County, private companies collect, transport, and dispose of hazardous wastes generated in the county. These wastes are disposed of in certified facilities to prevent the release of hazardous constituents to the environment.

Businesses in Fairfax County that generate more than 220 pounds or 27 gallons of commercial hazardous waste per month are categorized as hazardous waste generators and must abide by EPA and Department of Transportation (DOT) hazardous waste regulations. These regulations include specific requirements for the transport, storage, and disposal of commercial hazardous waste; hazardous waste generators typically contract with permitted disposal companies for collection. These companies include Clean Harbors Environmental Services, Inc., Clean Venture, Inc., and Potomac Environmental, Inc.

For conditionally exempt small quantity generators (CESQG)—businesses that generate less than 220 pounds or 27 gallons of hazardous material per month—Fairfax County provides a CESQG collection program. Safety Kleen Services, Inc., and Curbside, Inc., which operate the program, collect and dispose of hazardous waste directly from the business.

Regulated Medical Waste

RMW is primarily generated by medical facilities. A solid waste is considered RMW if it meets the following criteria defined by the VDEQ in 9VAC 20-120-140 of the Virginia Regulations:

Any solid waste, as defined in this chapter is a regulated medical waste if it is suspected by the health care professional in charge of being capable of producing an infectious disease in humans. A solid waste shall be considered to be capable of producing an infectious disease if it has been or is likely to have been contaminated by an organism likely to be pathogenic to healthy humans, such organism is not routinely and freely available in the community, and if such organism has a significant probability of being present in sufficient quantities and with sufficient virulence to transmit disease. If the exact cause of a patient's illness is unknown, but the health care professional in charge suspects a contagious disease is the cause, the likelihood of pathogen transmission shall be assessed based on the pathogen suspected of being the cause of the illness.²

Examples of RMW include human blood and body fluids or items contaminated with these fluids, organs, body parts, needles and syringes (sharps), bedding materials, and bandages.

² Virginia Waste Management Board, 9 VAC 20-120, "Regulated Medical Waste Management Regulations."

Generation Rates



RMW is either treated on-site by generating facilities or collected and disposed of by licensed RMW management companies. No data exist on quantities of RMW managed within the county. However, the VDEQ collects data on solid waste managed in the state annually. RMW generation in Virginia ranged from 21,132 to 24,591 tons per year

from 1999 to 2002 (Table 2-7).

Table 2-7. Virginia RMW Generation (tons)

	1999	2000	2001	2002	Average
RMW	21,821	23,076	21,132	24,591	22,655
Virginia Population	6,872,912	7,105,900	7,196,750	7,293,542	7,117,276
Generation rate (pcd)	0.0174	0.0178	0.0161	0.0185	0.0174

INOVA Fairfax Hospital is the only facility in the county that processes RMW.

INOVA Fairfax Hospital in Falls Church is the only facility in Fairfax County that processes RMW. This facility processes approximately 2,250 tons of RMW per year, all from INOVA Fairfax and INOVA Mount Vernon hospitals.

Generally, all RMW received at the facility is first shredded and then microwaved. After the waste has been treated in accordance with Virginia regulations, it is no longer classified as RMW. After treatment, the confetti-like product is compressed for transportation to out-of-county landfills.

The facility processes the following materials on-site:

- Human blood and body fluids
- Sharps
- Laboratory and microbiological waste
- Isolated waste associated with diseases not regularly found in the community
- Cleanup materials from body fluid spills
- Other contaminated materials.

The facility does not process all materials received. The following materials are transported off-site for processing:

- Pathological waste
- Chemo waste
- Hazardous chemicals.

Off-site disposal methods include incineration and steam sterilization. Virginia's RMW management regulations set standards for the storage, transportation, and treatment of RMW. It must be either stored, steam

sterilized, incinerated, or treated by an acceptable alternative mechanism in an acceptable facility. Innovative treatment technology may be allowed if the effectiveness of the treatment can be demonstrated.

In some cases, transportation of RMW by medical personnel requires no prior certification to VDEQ. However, commercial operators must file a certification that their businesses satisfy VDEQ's requirements before they can accept infectious material for transport. In all cases, the transportation of RMW is subject to the provisions in 49 CFR 171 through 178.

Fairfax County provides collection facilities for hazardous wastes generated from households (HHW).

Household Hazardous Wastes

VDEQ defines household hazardous wastes (HHW) as any household waste material that would be classified as a hazardous waste if it came from a business.³

Households generate many types of HHW during daily activities. Generally, a substance is considered hazardous if it can catch fire, react or explode when mixed with other substances, or is corrosive or toxic. Hazardous substances are specifically defined as follows:



- *Corrosive.* A chemical, or its vapors, that can cause deterioration or irreversible alteration in body tissues at the site of contact and deteriorate or wear away the surface of a material.
- *Flammable.* A substance that can be ignited under almost all temperature conditions.
- *Irritant.* A substance that causes soreness or inflammation of the skin, eyes, mucous membranes, or respiratory system.
- *Toxic.* A substance that may cause injury or death upon ingestion, absorption, or inhalation.

³ Virginia Waste Management Board, 9 VAC 20-80-10, "Definitions."

The most common types of HHW collected by the county are as follows:

Acids	Driveway sealers	Insecticides	Polishes
Aerosol sprays	Floor care products	Mercury products	Pool chemicals
Asbestos products	Fungicides	Moth balls	Rust removers
Automotive fluids	Glue (solvent base)	Paint (oil base)	Varnish and stains
Batteries	Herbicides	Paint thinner	Weed killers
Coal tar products	Inks and dyes	Poisons	Wood preservatives

Generation Rates

The county collects a significant amount of county-generated HHW at its two collection centers (the I-66 Transfer Station and I-95 Landfill Complex). Some HHW generated in the county is commingled with MSW and disposed of in residential and commercial trash containers, making it impossible to provide a reliable HHW generation rate for the county. Table 2-8 shows quantities of HHW collected by the county over the preceding years by HHW material.

Table 2-8. Fairfax County Annual HHW Collection (pounds)

Material	1998	1999	2000	2001	2002	Totals	Average
Solvents	96,850	108,600	89,300	73,600	80,950	449,300	89,860
Oil paints	89,600	85,750	71,000	87,050	100,750	434,150	86,830
Flammables in cans	21,000	68,775	62,475	58,275	50,400	260,925	52,185
Pesticides	65,325	75,150	64,800	86,400	85,500	377,175	75,435
Corrosives, bulk	3,200	5,200	3,600	5,200	6,000	23,200	4,640
Corrosives, labpack	4,300	3,700	2,040	4,400	5,620	20,060	4,012
Ammonia, bulk	400	800	—	—	400	1,600	533
Mercury	590	325	550	50	50	1,565	313
Aerosols	21,025	20,800	24,600	34,650	4,800	105,875	21,175
Lithium batteries	100	—	—	—	50	150	75
NiCad batteries	3,600	1,800	600	1,800	1,200	9,000	1,800
Misc. chemicals	600	1,595	60	—	20	2,275	569
Reactives	196	20	—	—	1,600	1816	605
Oxidizer	1,350	4,050	450	2,250	3,600	11,700	2,340
Asbestos	—	200	200	400	200	1,000	250
Absorb with oil	800	—	—	—	—	800	800
Total pounds	308,936	376,765	319,675	354,075	341,140	1,700,591	340,118
Total tons	154	188	160	177	171	850	170

Table 2-9 show historical totals for county HHW, tires, oil, batteries, septage, and sludge generation.